Opening remarks:  2006 ETOS Science Workshop Agenda

Good morning.
First I want to thank the representatives of Senator Frist and Congressman Duncan for their kind remarks and for their unwavering support of the East Tennessee Ozone Study.  We very much appreciate their attention to air quality issues in this unique part of the country and for putting their trust in the NOAA Air Resources Laboratory.  It is our sincere hope that we will be able to continue addressing air quality issues in East Tennessee and surrounding jurisdictions, and to apply our findings toward the protection of human health and the local environment.

I would like to take a moment to put the ETOS program into better perspective within the Air Resources Laboratory.  The Air Resources Laboratory is now well into its sixth decade.  The evidence of its beginnings, however, is still noticeable. To this day, ARL serves as the source of atmospheric transport and dispersion capabilities to the National Weather Service (NWS), to NOAA as a whole, and to a wide range of external users. But whereas the early focus was simply on the prediction of concentrations downwind of some specific emission source (e.g. a nuclear test), today the dispersion skills have broadened into many related areas of specialty. From the need to consider the chemistry of pollutants arose the present emphasis on air quality and its prediction. And from the awareness that pollutants are removed from the air through deposition processes came the ARL role in measuring and understanding wet and dry deposition. All of these activities are directly related to NOAA's core mission - the protection of people, and the stewardship of the environment and the prediction of changes in it.

No research laboratory is any better than its personnel. ARL benefits from having an experienced, enthusiastic, and productive scientific core, as well as from its association with many talented

researchers in other areas of government, the private sector, and academia. As you will see in the next two days, the ETOS program is moving forward through the programs implemented by ARL coupled with the benefit of a strong relationship with our partners.

OK, so let's move back to the issue at hand: the East Tennessee Ozone Study. What is the issue? If you go to the ETOS web page, you will read that the summers of the 1990s produced alarming headlines in the local press (Knoxville News Sentinel). Headlines ranged from "Air Quality at Clingman's Dome hits Danger Level" to"Smoky's Air Quality Setting Worst Records". During the summer of 1998, air-monitoring stations in the Great Smoky Mountains National Park recorded the highest-ever eight-hour average ozone exposures. By late August, the National Park Service reported the 25th day of unhealthy ozone conditions for 1998. For the summer of 1999, the National Park Service reported the highest number of days (53) in the Great Smoky Mountain park which exceeded the new US EPA 8-hour ozone standard. That was six years ago. Are things getting better? Well, perhaps, but as pointed out by the American Lung Association in their State of the Air:2004 report, nearly half of the US population still lives in areas with unhealthful levels of ozone and about a quarter of the population lives in areas with year-round levels of particle pollution. More specifically in East Tennessee the American Lung Association 2006 (the most report) states that Knoxville-Sevierville-LaFollette Tennessee ranks 14$^{th}$ nationally for metropolitan areas with the worst ozone pollution – an improvement from 9$^{th}$ in the 2004 report. Looking through the last few years of ozone data from the American Lung Association reports, it is clear that Knoxville-Sevierville-LaFollette Tennessee frequently ranks ahead of major metropolitan areas such as Dallas-Fort Worth, TX, Washington, Baltimore, Philadelphia, and New York for ozone pollution. Smaller cities in the region such as Morristown-Newport occasionally make the top 25 list as well.

And on a county basis, Sevier County occasionally makes the top 25 list.

The news for small particulates was marginally better in 2006. No cities or counties in East Tennessee made the American Lung Association top 25 list. This is an improvement from the 2004 report where Knoxville-Sevierville-LaFollette Tennessee ranked 12th nationally for year-round particle pollution – ahead of Chicago, New York, DC and Baltimore. Knox County came in 15th nationally – out of a total of 3141 counties nationally.

Clearly, improvements are still needed – and it begs the question: What are we doing about it? Fortunately, the news is not all bad.

Here at the Atmospheric Turbulence and Diffusion Division of ARL, we have a long history of atmospheric research in the local region, including 25 years of research at Walker Branch and the newly-built site on Chestnut Ridge. We have a measurement system in place to better understand the region's unique characteristics -- which include the complicated ridge/valley topography, the presence of several major interstates, and the fortune of being downwind of several major pollutant source regions including the Ohio Valley and the Atlanta metropolitan area.

ARL also has the tools to incorporate the local studies into the broader national program. A Memorandum of Understanding between our parent agency, the Department of Commerce and the Environmental Protection Agency ensures that our scientific findings will be incorporated into national air quality assessments and air quality forecasting programs – and that they will be policy relevant, influencing future national air quality legislation. Agreements with other collaborating parties will help us to integrate our findings with ecosystem studies – allowing us to put

air pollution into context with other threats such as insects and drought in places like the Great Smoky Mountain National Park.

In closing, this workshop is a culmination of air quality research conducted under the auspices of the ETOS program and is a showcase for research conducted by other agencies and organizations in the region. The workshop also gives stakeholders the opportunity to present their findings and discuss them with others knowledgeable about the field. If we are successful, the workshop will provide a roadmap for the future direction of air quality research in the region.